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Textual and Visual Information in Ewom: A Gap between Information Search and Diffusion

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ABSTRACT

In an attempt to better understand the important role of visual information in eWOM, this paper aims to examine the gap between travel-related information search and diffusion by online users. Descriptive analysis is used to examine the types of information combination that are perceived as powerful and influential by potential travelers and contributed by experience travelers. Several t-tests and one-way ANOVA are also conducted to investigate various differences (e.g., individual preference for information combination, information combination selection for each of eWOM diffusion venues). The survey result finds that, as people rely more on Internet information for their future travel, potential travelers perceive information with textual and visual information (i.e., photos and videos) in conjunction more powerful and influential for their travel motivation formation than text-only information. On the other hand, while text and photo combined information ranks still high in their information contribution, substantial rate of experienced travelers tends to contribute text-only information as well. The reasons for this gap and individual differences behind their information choices are examined. Some managerial suggestions for each eWOM diffusion venue are also suggested.

Keywords: *textual information, verbal information, visual information, dual-coding theory, multimedia learning theory, individual differences.*

INTRODUCTION

The Internet has changed almost every aspect of our daily lives from the ways we live, work, communicate, learn, and play to the ways we shop and buy consumer products and services (Hanson, 2007; Mcmillan & Morrison, 2006). Especially in information search and diffusion process, the emergent role of electronic word-of-mouth (eWOM) is highly emphasized as a powerful marketing tool due to its great impact on consumers' purchase decision making (Park, Lee, & Han, 2007). Unlike traditional face-to-face WOM which can only be spread in verbal information, eWOM has its own advantage of conveying both verbal and visual information simultaneously and the advantage makes the impact of eWOM on consumers' decision making process extremely powerful.

The importance of visual information in association with verbal information has been supported by studies in a number of disciplines such as education, medicine, and marketing (Adelaar, Chang, Lancendorfer, Lee, & Morimoto, 2003; Kim & Lennon, 2008; Smith & Woody, 2000). The results illustrate how verbal and/or visual information can influence the receivers'

possible change of knowledge, comprehension, satisfaction, and attitudes (i.e., affective and cognitive) toward the object that the provided information is about. Some studies emphasize the role of visual information in enhancing the influence of verbal information on learning the given context. From the research of education, for example, Smith and Woody (2000) argue that multimedia with high visual orientation along with traditional verbal learning style can benefit students to improve their performances. Indeed, Angeli and Valanides (2004) also confirm that information delivered through both verbal and visual methods has been proven to be more effective to enhance the understanding of a provided context than verbal information only. The others also assert that verbal information plays a more essential role with the presence of visual information. Loftus, Miller, and Burns (1978) suggest that verbal information to which a witness is exposed after visual information, whether the verbal information is consistent or misleading, is integrated into the witness's memory, helping the witness to understand the visual information. In business literature, Kim and Lennon (2008) also affirm that the combined visual and verbal information have significant effects on affective and cognitive attitudes toward products, but only verbal information have a significant effect on consumers' purchase intention.

The ease of capturing and creating digital images has caused most online information sources to look more visual (Chang, Smith, Beigi, & Benitez, 1997) and the visualized information has become an integral part of human communications. Especially in tourism industry where its products and services are *experience goods* that cannot be evaluated before purchase (McIntosh, 1972), eWOM is playing a more critical role than traditional WOM had been. Experienced tourists can easily provide visualized information using digital images and videos in addition to textual descriptions. Enormous volume and various kinds of eWOM contents are exchanged among potential and experienced travelers through numerous media platforms such as blogs, online travel communities, E-mails, and online travel reviews. However, most studies on the impact of eWOM investigate the role of online travel review for its possible influence on tourists' decision making. Indeed, online travel review is crucial for easy and efficient exchanges of experiences and opinions on tourism products and services but it lacks the power of visualized eWOM because it typically contains only textual information.

A comprehensive study to understand the attributes of eWOM content is still scant, specifically on the current phenomenon that enables eWOM contributors to exchange visual information (i.e., photos and videos) as well as textual information. With million bytes of digital images and texts being exchanged, it is critical to understand the types of information people are searching for and contributing on the Internet. Therefore, the goal of this study is to examine: 1) which eWOM information (e.g., verbal and/or visual) tourists perceive most powerful and influential prior to their travel experiences, 2) which eWOM information they contribute most after their travels, 3) reasons for the possible gap between their information search and contribution behavior, and 4) individual differences behind their information preferences.

LITERATURE REVIEW

Verbal and visual information

Both verbal language and visual imagery are the two main types of mental representation used by humans (Denis & Mellet, 2002; Edwards, Sadoski, & Burdinski, 2005; Sojka & Giese, 2001). In fact, the assertion that items presented in both verbal and visual information are understood and remembered better is first given through dual-coding theory proposed by Paivio (1969, 1971, 1986) and later applied to multimedia learning theory by Mayer (2001, 2005). According to dual-coding theory (Paivio, 1969; 1971; 1986), cognition activities are a result of

two mental subsystems, which are a verbal system and an imaginal system. It most effectively explains the facilitation of visual information on learning in addition to textual information. He also reiterates that these two subsystems are often thought to be separate but, indeed, interconnected components of human cognition process. Based on dual-coding theory, most studies on visual information prior to 1990s emphasize its mnemonic function when used along with textual information (Schnitz, 2002). They focus on the role of additive illustrations which can facilitate memorizing textual information. However, studies after 1990s support that static and animated pictures not only work as visual adjuncts of text information but also have a transformation function (i.e., representation, organization, interpretation, and mnemonic encoding) (Carney & Levin, 2002). Mayer (2001, 2005) further proposes multimedia learning theory that posits optimal learning can be achieved only when both verbal and visual information are presented simultaneously. The theory is based on three assumptions that humans have separate systems for verbal and visual material process (dual-channel assumption), each channel is limited in the amount of information that can be processed at a time (limited-capacity assumption), and optimal learning involves cognitive processing in addition to building connections between verbal and visual representations (active-processing assumption) (Mayer & Moreno, 2003).

Indeed, many studies support that it is more effective when both verbal and visual information in conjunction are consumed by information receivers for their affective and cognitive attitude, thereby, their motivation and intention. One study examines how different information formats cause emotional responses which can explain information receivers' buying intention (Adelaar, Chang, Lancendorfer, Lee, & Morimoto, 2003). The result shows the still images and videos do not necessarily generate more buying intention of CDs than the combinations of text and music. Sojka and Giese (2001, 2006) examine how two groups with different affective and cognitive needs show different preferences to verbal and visual information. They (2001) affirm that individuals with a high need for cognition prefer to process verbal information while individuals with a high need for affect prefer to process visual information. The researchers (2006) further suggest by exploratory investigation that individuals in high affect (i.e., affective processors) respond more favorably to advertisements with visual information than the other groups, and individuals high in both affect and cognition (i.e., combined processors) respond more favorably to advertisements with both verbal and visual information. Furthermore, emphasizing the impact of the interactions between verbal and visual information, Denis and Mellet (2002) reiterate the importance of visual imagery in human cognition.

It is extremely important to provide both verbal and visual information to potential consumers in tourism markets because of the intangible nature of the experiential products and services. With the emergence of Internet, capturing and visualizing images of tourism products and services has been much easier compared to a couple of decades ago. By the aid of individual information contributors who are willing to share their own travel experiences, more visual information in addition to verbal information has become accessible nowadays. Therefore, the need for in-depth research on attributes of verbal and visual information in eWOM within tourism settings is extremely emphasized.

In most of studies, information types are separated into two categories, that is, verbal and visual information. However, there has been an issue in treating textual and oral information as verbal information. Some studies only include textual information as verbal information, while other studies focus only on oral information. Even more, there are a few studies that differentiate

textual information from verbal information. For example, Johnson and Sandford (2005) seek to identify the significant difference of understanding given information between text information (written language) and text and verbal (oral language) information. The significant difference between the two groups is identified, but the method to put textual and verbal information in separate ways seems problematic. Therefore, the present study puts an emphasis on the fact that verbal information also consists of textual (or written language) and oral (or spoken language) information. Textual, oral, and visual information in eWOM postings are presented in the format of text, audio, and photo. Even though video can contain all of textual, oral, and visual information in itself, it is considered visual information only in this particular study. The information types and formats used in this study are represented in Table 1.

Table 1
Information Types and Formats Used in eWOM

Information Type	Verbal		Visual
	Textual (Written Language)	Oral (Spoken Language)	Visual (Static and Animated Image)
Information Format	Text	Audio	Photo
	Video		

Individual differences

A number of researchers have attempted to understand the attributes of people's eWOM participation in various online venues. For example, Wang and Fesenmaier (2004a, 2004b) attempt to understand the general participation in and actual contribution to online travel communities. Additionally, Yoo and Gretzel (2008) investigate the motivations for consumers to write online travel reviews. However, studies on the kinds of information formats that potential and experienced tourists perceive as influential for their motivation formation, information contribution in various Internet venues, and individual differences behind them are still lacking.

It has been emphasized that the examination of individual differences in consumer information processing need more attention as an important research area within both marketing and consumer behavior (Cacioppo, Petty, Feinstein, & Jarvis, 1996; Childers, Houston, & Heckler, 1985; Ford, Miller, & Moss, 2001; Schnotz, 2002). Indeed, individuals have shown significant differences in their abilities and preferences during their acquisition of information. For example, Cacioppo et al. (1996) note that the need for cognition and information is gender neutral. The role of individual differences including gender in Internet information searching behavior is also investigated by Ford et al. (2001). Their result illustrates the link between female gender and poor information retrieval performance. Schnotz (2002) states that visual adjuncts to textual information can more effectively facilitate communication, thinking, and learning than text-only information can, but their appropriate function is extremely dependent on information receivers' prior knowledge, experiences, and even their ages. He reiterates that the effect of visual information as a complement of textual information is highly related with information receivers' cognitive abilities and learning.

Therefore, based on the research foundation above, this study aims to examine followings:

1. The types of eWOM information combination people perceive as powerful and influential for their future tourism motivation formation.
2. The types of eWOM information combination people contribute in various venues after their tourism experiences.
3. The possible reasons for the gap between information searched and contributed.
4. Individual differences behind preferences toward information search and contribution.

METHODOLOGY

This study is conducted through an online travel community designed for Korean nationals who are eager to search for and contribute information on Japanese culture, language, and travel experience in Japan. The website provides a number of online travel forums which focus on specific regions in Japan where over 15,000 members freely retrieve information and contribute travel related postings. More specifically, this study attempts to gather general opinion about the characteristics of information online travel community members are seeking for in travel forums. To eliminate the variance among members according to their duration of membership, the questionnaires are only answered by newly registered members as a way of permission to gain membership. The survey was conducted from November 14, 2009 to February 4, 2010 resulting in 619 useful responses.

The survey consists of several questions directed to participants' general information and their eWOM search and contribution patterns. The first part was designed to identify respondents' demography as well as Japanese language proficiency level, Japanese culture understanding level, and number of travel experience to Japan in order to inquire how well respondents understand Japan as tourism destination. Both levels of Japanese language and culture understating are measured with five point Likert scale ranging from one for 'cannot speak Japanese at all' and 'do not know Japanese culture at all' to five for 'can speak Japanese very fluently' and 'know Japanese culture very well'. The second part includes three questions to identify the information source that generates respondents' travel motivation, the information source used to prepare their future travel, and the information format combinations they perceive as most influential on their destination choices. The last part is designed only for respondents who have contributed eWOM postings on various Internet venues. It inquires the venues used, the combination of information posted, and the extent to which they were satisfied with the travels that they posted.

The types of information combination that respondents perceive as the most influential for their future travel, those that people actually contribute after their travel and the possible gap between them are investigated using descriptive analysis. Any reasons for choosing the specific information combination for their contributed information is depicted by their descriptions. Finally, several chi-square tests and t-tests are performed to examine the differences among groups who are favorable to specific information combinations in terms of their individual differences (i.e., age, gender, Japanese language level, Japanese culture understanding level, the number of travel experience to Japan). A one-way ANOVA is also conducted to examine the difference in satisfaction among travel related information distribution venues in terms of eWOM contributors' satisfaction.

RESULTS

In terms of demographics, most members are in their 20s (34.2%), followed by ones in 30s (28.9%) and 40s (15.0%). Female members count 68.7% of the respondents. Office workers (41.8%) are the highest in occupation, followed by students (32.5%) and housewives (7.9%). Also, over half of respondents stated that they have traveled to Japan at least once (45.4%) or even currently live in Japan (12.6%), while 42.0% have never been to Japan. Of the ones who have traveled to Japan (281 respondents), the number of people who have traveled to Japan from one to five times declines gradually (123, 55, 34, 20, and 13, respectively) and there are 36 respondents who have traveled to Japan six or more times. Both levels of Japanese language proficiency ($M=2.20$, $SD=1.01$) and Japanese culture understanding ($M=2.41$, $SD=0.97$) are normally distributed.

The respondents were asked to choose one information source that evokes their motivation most to travel to specific tourism destinations. Their motivation is evoked mostly by TV Shows (e.g., dramas and documentaries) (33.1%), followed by books and magazines (22.9%). Internet does not have a powerful impact on instilling their motivation (15.1%) and is ranked third among them followed by recommendations from friends and family members (12.1%) and movies (5.9%). The others address they have other information sources (10.8%) for travel motivation such as animation, newspaper, and songs. From their answers, it can be stated that the information sources which contain both verbal and visual types, such as from TV programs, prints, and the Internet, are more influential than traditional WOM conveyed by verbal information only. However, Internet (53.7%) is chosen as the most efficient source for respondents to retrieve information about destination for their potential travels, while others are seeking information from books and magazines (19.4%) and friends and family members (12.7%). TV (1.6%) is found to be least useful for information source when they are actually planning for a travel than travel agency (7.9%) and the others (4.8%). The results suggest that Internet, which easily provides both verbal and visual information, is getting more important as a convenient and powerful tool for information search, even though TV still has a high impact on tourism motivation formation.

Types of information searched and contributed

Participants were asked about the most powerful and influential types of information (i.e., verbal and/or visual) to evoke their travel motivation. The result (see Table 2) shows that any information format provided by itself is not considered as a useful information source. The information formats are perceived as more powerful and influential when they are combined with others. Specifically, respondents indicate that textual information alone is not attractive enough and is more effective when combined with visual information (i.e., photo and/or video). Text and photo combination (47.6%) is chosen as the most powerful to provoke travel motivation, followed by all types of information combination (31.1%). Interestingly, even though both photo and video are visual information, which is considered efficient when combined with textual information, the percentage of text and video combination (8.4%) is much lower than the percentage of text and photo combination.

Table 2
A Gap Between Information Searched and Contributed

Table 2 A Gap Between Information Searched and Contributed	Information Searched	Information Contributed
Text Only	0.5%	14.7%
Photo Only	2.5%	7.4%
Video Only	0.2%	0.6%
Text + Photo	47.6%	70.6%
Text + Video	8.4%	1.2%
Photo + Video	9.8%	1.8%
All	31.1%	3.7%

Participants of the survey were also asked if they had contributed in spreading information about their travel experiences online. Over one quarter (27.1%, 167 respondents) indicated that they have engaged in eWOM posting at least once in various formats. Mostly, they have posted their experience on their own blogs (53.3%), followed by online travel communities (24.0%), E-mails (11.4%), online travel review websites (7.8%), and others (7.8%). The numbers seem feasible, but there can be a possible bias that the percentage of online travel communities in the sample is higher than in population as the survey is conducted with online travel community users. Those who had contributed any combination of information formats were also asked about the satisfaction with their travel experience when they posted eWOM. The satisfaction was measured with five point Likert scale ranging from one for strongly dissatisfied to five for strongly satisfied. A one-way ANOVA was conducted to examine the difference in eWOM contributors' satisfaction among three most frequently used public venues for travel related eWOM diffusion (i.e., blogs, online travel communities, and travel review websites). The homogeneity of variance assumption has not been violated ($LS(2,127) = .12, p=.887$). However, the result of analysis of variance revealed no significant differences among three eWOM venues in terms of satisfaction scale ($F(2,127) = .796, p>.05, \eta^2=0.01$). It implies that people do not choose the eWOM diffusion venues in accordance with their positive or negative satisfaction with the specific tourism destinations. The relationship between eWOM posting venues and information format is also investigated with Pearson chi-square, $\chi^2(24, N=154) = 65.082, p=.000$. Text-only information is mostly shown in travel review websites (22.2%), while it is less posted on online travel communities (14.3%) and blogs (3.5%). However, text and photo combination is proven to be most frequently used in blogs (84.7%) and online travel communities (74.3%), while it is still the highest (55.6%) in travel review websites but lower than blogs and online travel communities.

Significant comparison can be made with the results of other questionnaire that asked which type of information posting the respondents have actually made (Table 2). Overall, they tend to post less information than they feel they need for their actual travel. Most travelers

(96.9%) who stated they need the combined two or three types of information actually posted less number of information types. Even though potential travelers felt that postings with only one type of information are not attractive enough to make them interested in traveling to specific destinations, most experienced travelers chose to post only one type of information in their postings (22.7%). It is interesting that members still tend to post text-only information (14.7%), while text-only posting is not considered as useful information source (0.5%). Also, they posted video-only information (0.6%), which is slightly higher than they searched (0.2 %). Videos are also less posted as an element of combinations (i.e., 1.2% in text + video, 1.8% in photo + video, and 3.7% in all), even though it is expected as good sources of motivation provoker (8.4%, 9.8%, and 31.1%).

Reasons for the gap between information searched and contributed

In the last part of the survey, responders were asked to describe why they chose the specific information combination in their eWOM postings. The reasons members stated for posting text-only information are not being familiar with using computers and not having the necessary equipment (e.g., digital cameras or video cameras) to post visual information. The others also addressed that leaving text-only information seemed less difficult and time consuming than including photos and videos. The reasons for posting photos or videos without text descriptions are the short memory of destinations' names and avoidance of a bothersome work (i.e., typing textual information) while still wanting to post something by only clicking a mouse. Almost three quarters (70.6%) who posted a combination of text and photo in their eWOM postings state they believe that visual information (i.e., photos) combined with textual explanation best express what they felt about their experiences and what they wanted to provide for others. However, members feel that a video is hard to edit or not necessarily needed for their perceived perfect information combination. Those who provide videos in their posting combination mentioned that a video can be the most effective and dynamic way to deliver their experiences and feelings when it is combined with the other types of information.

Individual differences

Individual differences for preference for each influential information combination are examined. Since there are only small numbers of respondents who perceive only one format of information, text + video, and photo + video as useful for their travel information search, the differences between text + photo (288 respondents) and all combination (188 respondents) groups are examined. Table 3 shows the results indicating that there are no significant differences between the two groups except in their travel experience ($t(474) = 2.309, p < .05$). Ones with comparatively small number of travel experience to the specific destination tend to explore video-included information than ones with more experiences. Gender difference in terms of perceived importance about information combination is examined as well by conducting chi-square test. The result shows that the percentage of information searched varies by gender, $\chi^2(6, N=605) = 17.769, p = .007$. Even though both males and females perceive all combination as most influential and useful information (31.1%, both), females (51.8%) prefer text and photo combination more than males do (38.4%). Meanwhile, in spite of the fact that eWOM with single information format is not consider useful enough to search for the future travel of males and females (8.2% and 9.2%, respectively), male respondents (26.9%) are shown to rely more on video-included information (i.e., text + video and photo + video) than females (14.2%) do.

Table 3
t-test results for eWOM contributors' individual differences

		Levene's Test		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Age	Information Searched	9.136	.003	.040	474	.968	.004	.108
	Information Contributed	.064	.800	3.056	137	.003*	.689	.226
Travel Experience	Information Searched	2.427	.120	2.309	474	.021*	.533	.231
	Information Contributed	.027	.870	-.580	137	.563	-.323	.557

* $p < .05$

Since there are only small numbers of respondents who contributed photo-only, video-only, text + video, photo + video, and all combination eWOM postings (12, 1, 2, 3, and 6 respondents, respectively), the individual differences among eWOM contributors with different information choices are examined with only the ones who chose to use text-only information (24 respondents) and text + photo information (115 respondents). The results (see table 3) shows that there are no significant differences between the two groups except in their age ($t(137) = 3.056$, $p < .05$). Respondents who are willing to post text and photo combination eWOM are found to be younger than the ones who only posted text-only information. Different choice of information combination is examined in terms of gender as well by using chi-square test. The Pearson chi-square test identifies that the percentage of information combination differs by gender, $\chi^2(6, N=163) = 14.803$, $p = .022$. Male respondents are higher in posting text-only information (20.0%) than females (12.0%), while they are lower in posting text and photo combination (54.5%) than female respondents (78.7%). However, it is worth to notice that males are more familiar with posting video information (i.e., video-only, text + video, photo + video, and all combination, 14.5% in sum) than females are (3.8%).

CONCLUSION

Travelers and eWOM have a very intimate relationship. With the emergence of Internet, travelers are getting more dependent on eWOM that has a convenient access and virtually unlimited amount of information. Not only as an information search channel, Internet and eWOM also have their own advantage as an information distribution channel which enables travelers to spread their experience before and after their travel. This makes eWOM more reliable and favorable over traditional communication tools such as book, magazines and TV while they all have high impacts on evoking travelers' motivation with their detailed verbal explanation and dynamic visual images compared to traditional WOM.

From the result of this study, several facts about individual differences behind eWOM search and contribution are found. First, as proposed in multimedia learning theory (Mayer, 2001, 2005), potential travelers prefer verbal in conjunction with visual information and perceives the two information type together as influential and powerful than verbal information only. For information retrieval, they suggest photo + video combination and all (i.e., text + photo + video) combination are more influential and powerful for them to instill travel motivation than text-only information. They also show that the eWOM posting with verbal and visual information together is more effective to deliver correctly what they felt and what they wanted to convey about the

specific destination. Secondly, even though verbal and visual information in conjunction is perceived as more influential on potential travelers' destination choices than text-only information, there is a large gap between information search and diffusion behavior. In spite of the perceived effectiveness and powerfulness of verbal and visual combination information, the percentage of the text-only information in their information contribution is significantly higher than in their information search. Also, the percentage of the video-included information in their information contribution is much less than those of information search. Third, individual differences behind both information search and contribution are also identified. For choosing influential information combination, male and ones with less travel experience tend to prefer all information combination rather than text + photo combination. For information contribution, younger participants and female prefer to post text + photo combination than text-only information. There are no significant differences found among other groups in terms of the other individual difference attributes. Lastly, it is found that people contribute more text + photo combination information on blogs and online travel communities than they do on travel review websites and E-mails, while they do not select a specific eWOM venue for circulating either positive or negative travel experiences.

Practical implications for destination marketers, online travel communities, and travel review websites can be suggested. Since blogs and online travel communities are powerful by easy hosting and combining different types of information sources for travel experience diffusion, they can be considered as an efficient platform for tourism product developers and destination marketers to tap into. Using various ways to encourage popular travel bloggers and members of online travel communities to provide more positive and influential combinations of information, tourism product developers and destination marketers can promote and distribute their products and services more effectively. For travel review websites, it is found that people tend to post less verbal and visual combination information than they do on blogs and online travel communities, even though they are aware that the combination is more effective to deliver what they really share with others. This is due to the perceived hardships of posting rich information on travel review websites, such as the technical difficulty of editing and posting videos in addition to text. Since potential travelers consider visual information as useful, it is essential for travel review websites to develop user-friendly visual information posting environment or provide incentives to encourage their members to provide postings in more effective combinations. This also suggests that destination marketers should fill the gap by providing visual information using personalized scenarios of tourist experiences and by facilitating ease of posting for tourists who are eager to share their experiences in travel-related online forums and communities.

Even though this study casts several meaningful results, several limitations remain. First, despite the rich number of participants for the study, there is only few for specific information combinations except text + photo combination and all combination in case of information search. Due to the small number of respondents in such groups, in-depth comparison using all kinds of information groups cannot be conducted. Also, since this survey is conducted using the members of an online travel community, there can be a possible bias due to the way of data collection. Further study using the other ways of data collection will strengthen the results of this study. Finally, this study only looks at the powerful and influential information combination perceived by survey respondents. More important for better practical implication is to examine which kind of information combination can actually influence travelers' tourism products and services buying intention. Future research needs to follow up as an experimental design providing several

information combinations to investigate how they can influence tourists' actual purchase intention.

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